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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,068	11/21/2001	Motoyuki Abe	503.40884X00	9553

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EXAMINER

BUI, THACH H

ART UNIT

PAPER NUMBER

3752

DATE MAILED: 08/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/989,068

Applicant(s)

ABE ET AL.

Examiner

Thach H Bui

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) Z. 6) ☐ Other: .

DETAILED ACTION

1. The preliminary amendment filed February 28, 2002 has been received and entered.

Information Disclosure Statement

2. Applicant's prior art citation filed July 18, 2002 has been received, considered and placed of record.

Claim Objections

3. Claim 7 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claim 7 has not been further treated on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 is vague and indefinite because there is no clear or proper antecedent basis for "the required distance".

Claim 6 is vague and indefinite because there is no clear or proper antecedent basis for "the injection hole takes an almost abutting-angle relationship at the position closest to that wall surface".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by McKay et al. (U.S. Patent No. 4,790,270).

McKay et al. teach a fuel injector having a plurality of wall surfaces almost parallel to the central axis of the injection hole (see Fig. 11) comprising a valve body provided with a fuel injection hole and for opening and closing a fuel passage between the injection hole and a valve seat provided at the upstream end of the injection (see Fig. 8 and 11). The system includes a means for driving the valve body (col. 7, lines 47-55), wherein the fuel injector is characterized in that a restraint means for restraining the flow of a fuel is provided downstream with respect to the injection hole and outside this injection hole, in that the flow restraint means restrains the flow of the fuel in at least two places and splits the fuel into portions high in the spraying density of the injected fuel and portions low in the sprayed density of the fuel, and in that the split portions of the fuel that are high in spraying density differ from each other in terms of quantity (see fig.

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5, 6, 8 and 12) (col. 8, line 28-col. 9, line 15). McKay et al. also teach a plurality of release areas for enabling the fuel to flow in its radial direction and the release areas are differ from each other in terms of size and/or angle (51, 52, 53 and 54) (see Fig. 4 and 6). The apparatus comprises the spraying pattern of the fuel set to ensure that the flow rate of the sprayed fuel in one of the two directions of concentration is greater than the flow rate of the fuel in the other direction (i.e. larger sprayed angle will generate a higher flow rate comparing to smaller sprayed angle) (see Fig. 4).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wagner et al., Herman et al., Okamoto et al. ('592, '419, '720, '665 and '016), Koseki et al., Miyajima et al and Tsuchiya et al. are cited of general interest

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thach H Bui whose telephone number is 703-305-0063. The examiner can normally be reached on Monday-Friday, 7:30-4 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mar can be reached on 703-308-2087. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

T.B.
August 11, 2003



MICHAEL MAR 8-15-03
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700